ADAPTATION TO AND CONTINUED EDUCATION FOR TEACHERS OF TROPICAL MEDICINE*

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THE development and maintenance of teaching and research in tropical medicine in our schools of medicine has not kept pace with the needs. In the United States this discipline was assigned, for many years, to the parasitology laboratory and taught as an isolated basic science in a variety of departments, isolated from clinical teaching except for a few scattered lectures during the clinical years. Students were required to learn complicated life cycles without knowing or understanding much about the clinical aspects of the various diseases. The little clinical teaching that was presented was given by instructors with little or no actual experience in the tropics; they presented only what they had read in textbooks. It was also obvious that the teaching of tropical medicine diminished as parasitic diseases diminished in the United States.

The lack of teaching and research in the broad areas of tropical medicine, public health, and epidemiology became evident at the beginning of World War II. The inadequate teaching program in the majority of our medical schools made it necessary to set up special courses in tropical medicine and in infectious diseases as a whole for our military medical officers and for our civilian teachers.

The first survey of the teaching of tropical medicine in medical schools in the United States was made by Meleney et al. in 1941.[1] This survey was made at the request of the Association of American Medical Colleges, which had appointed a committee to assess the current teaching in view of the needs of the Armed Forces for trained personnel in this field of medicine. In that survey 20% of the 76 medical schools that replied reported no teaching in parisitology, 14% reported an in-

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definite number of hours of instruction, and 29% reported less than a total of 30 hours of instruction in this field. The situation with reference to the teaching of clinical tropical medicine was even more unfavorable. Only 26% of the 76 schools reported any instruction in this area, and 9% of these schools offered only an elective program in tropical medicine.

As a result of military needs, most of the medical schools which were found deficient in the teaching of parasitology and tropical medicine in 1941 assigned much more teaching time to these two disciplines during World War II. This was aided by a program for providing intramural and field training to medical school instructors in tropical medicine, which was sponsored by the Association of American Medical Colleges and supported financially by the John and Mary R. Markle Foundation of New York City. In this program 130 instructors from 53 schools in the United States were awarded fellowships to take courses at the Army Medical School in Tulane University School of Medicine or to spend four weeks in Central America or both. The establishment of a distributing center for teaching specimens at the Army Medical School also facilitated the instruction.

In 1945 a second survey of the teaching of parasitology and tropical medicine was conducted.[2] Of the medical schools in the United States that reported at that time, only one cited no instruction in parasitology and only 10% reported less than 30 hours of instruction. The increase in instruction in tropical medicine, distinct from parasitology, was even more striking. Of the schools that reported, only 5% stated that no specific instructions in tropical medicine was given, as compared to 74% in the 1941 survey. The number of instructors in parasitology in the 87 schools in Canada in the United States had increased from 155 in 1941 to 206 in 1945. Instructors in tropical medicine had increased from 49 in 1941 to 151 in 1945. Eighty-three per cent of the schools stated that they expected to continue the teaching program in parasitology and tropical medicine in the postwar period as it was conducted in 1945.

This is a striking example of how the pressures of war brought the problems of tropical medicine and tropical public health into the area of top priority in our medical schools. In the Pacific, health problems such as filariasis, malaria, schistosomiasis, gastroenteritis, and a variety of virus and rickettsial diseases were major problems facing the military. In addition there was a tropical and subtropical environment which

contributed much to the health problems facing our Armed Forces. World War II did more to stimulate an interest in the teaching and research of tropical medicine in our medical schools, universities, and our government than any other event in our history. The advances made during and since the war have made medical history. However, the momentum has not been sustained.

At the end of World War II the United States Public Health Service developed, through the National Institutes of Health, a broad program of research in medicine and allied sciences. The sections in tropical medicine and malaria study were among the first to be formed to assist the Research Grants Division in selecting outstanding research projects presented for funding. These two study sections were extremely active in the beginning, but within a few years the number of research projects relating to malaria and tropical medicine gradually declined. The interest of those responsible for appropriation of funds also declined, and the Malaria Study Section was merged with the Tropical Medicine Study Section.

In 1951 the Tropical Medicine Study Section and the Division of Research Grants of the National Institutes of Health sponsored a two-day conference on needs in tropical medicine.[3] The objectives were to discuss teaching and research needs and to identify neglected areas in the field of tropical medicine and to make specific recommendations. One of the recommendations coming from the group assigned to discuss educational needs and facilities for training was that a resurvey of the teaching in our medical schools be made. Another recommendation was that opportunities were needed for both students and faculty to work in the tropics, an opportunity similar to that developed for field training during the war.

Following the 1951 conference, Meleney and Frye in 1955 resurveyed the medical schools in the United States.[4] Tropical medicine was no longer taught as a separate course or even as a distinct and separate segment of any other course or any department in medical schools. It was evident from this survey that the teaching of tropical medicine as a separate course had almost completely disappeared and that there was some decline in the teaching of parasitology. Replies to a questionnaire were received from all 81 of the medical schools; 57% of the medical schools in the United States expressed the need for more teaching and more adequately trained teaching personnel with some practical experi-

ence in the tropics as a prerequisite for teaching tropical medicine.

As a result of the needs expressed for training and practical experience in tropical medicine and parasitology in the medical schools, Meleney and Frye[4] presented a plan to establish a national tropical medicine fellowship program. This program was designed to give teachers in our medical schools actual experience in tropical and subtropical areas of Central and South America. The program, to be administered by the Louisiana State University School of Medicine, was approved by the Study Section and presented to the National Advisory Health Council. Both groups recommended approval but no funds were available. The project was presented to the China Medical Board of New York, and an appropriation of $40,000 per year was made to Louisiana State University to cover a three-year period in 1955. Since 1958 the program, funded by the National Institute of Allergy and Infectious Diseases, has been in continuous operation.

In 1959 a supplemental request was made for funds to establish a period of tropical field training for a carefully selected group of senior medical students. Many of the teachers who had participated in the fellowship program had suggested that a few medical students interested in parasitology and tropical medicine would benefit by a period of clinical experience in the tropics. This program has been one of the most profitable and exciting experiences in the fellowship program. Another medical-student program under the direction of the Association of American Medical Colleges, financed by the Smith, Kline and French Laboratories of Philadelphia, was organized in the early 1960s. This program offered senior medical students enrolled in medical schools in the United States an opportunity to travel abroad and to work and study in remote areas of the world. These fellowship programs have also made an important contribution to the teaching of tropical medicine and to international relations throughout the world.

In 1960 a fourth conference on Research Needs in Tropical Medicine was sponsored by the Tropical Medicine and Parasitology Study Section, Division of Research Grants, National Institutes of Health.[5, 6] The primary purpose of this informal two-day conference was to explore the status of research in tropical medicine, with emphasis on the interdisciplinary areas, to broaden the concept of tropical medicine, and to orient better subsequent research in geographic medicine. One of the major recommendations coming from this conference was that interna-

tional centers for research and training should be developed. It was recognized that the raw material for research on tropical medicine is not now available in the United States. This lack has profoundly influenced the direction in which research and teaching in tropical medicine has drifted. Investigators have veered away from disease-oriented studies into the area of basic biology. Scientists working in their comfortable, well-equipped laboratories in the United States have devoted their energies to the study of the biology of pathogenic agents, to experimental models which may elucidate the host-parasitic relation, and to biochemical and metabolic investigations of nutritional diseases. At the same time it was noted that studies in the tropics on the epidemiology, etiology, pathogenesis, and epidemic control, and even attempts to eradicate certain controllable diseases had all but ceased.

During the past decade an effort has been made to develop International Centers for Research and Training (ICMRT) in a variety of environments throughout the world. The United States Congress made an appropriation to the United States Public Health Service to develop a limited number of such centers throughout the world. A United States university provides a professional framework in which medical research and training projects can be conducted in well-established laboratories in a local setting. Five such centers were developed; each organized research projects of major health interests in the area. The major objectives of these ICMRT programs was designed to increase the medical knowledge of the medical care problems of the area, to increase the number of local and American personnel trained to help solve these problems, and to provide a basis for strengthening international medical relations between the United States and the host countries.

The Louisiana State University Tropical Medicine Fellowship Program, organized and started in July 1955, has been a continuous program for teachers in our universities and medical schools, and for graduate students and medical students since that time. The fellowship program is now financed through 1975. To date more than 650 individuals have participated in the program. All were able to get some experience in a tropical or subtropical area. No attempt has been made to resurvey the teaching programs in tropical medicine in our medical schools during the last decade.

Plans are now under way to conduct a follow-up study on all individuals who have participated in the Louisiana State University Tropical

Medicine Fellowship Program. We do know that many of those who participated in the fellowship program now have responsible teaching positions in our medical schools and in schools of public health, and many of our senior medical student fellows have served overseas in the Peace Corps, in the Armed Forces, and the Public Health Service. Many of the Armed Forces personnel who have been in the program have served or are now serving as preventive medicine officers in many areas of the world.

Political and economic trends during the past three decades have involved the nations of the world in activities which dispersed their citizens to all areas of the world. This has increased the need for trained personnel in all disciplines encompassed in medicine and public health in the tropics and subtropics. The activities and responsibilities of the United States in the field of international health, which are being carried on in cooperation with many countries, are consonant with our desire to contribute to the improvement of health care throughout the world.

Today there is a renewed interest in medicine and public health in the tropics. We must make efforts to improve the teaching of clinical tropical medicine in our medical schools through a closer and more practical interdepartmental teaching program involving medical parasitology, epidemiology, and clinical medicine. This can be accomplished through the cooperation of the clinical and basic scientists, and through fellowship programs for both teachers and students.

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